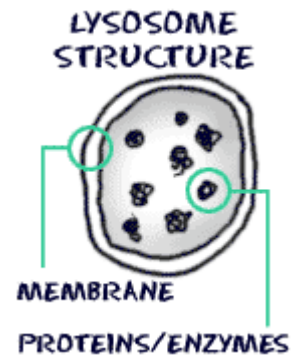


Lysosomes - Little Enzyme Packages

Lysosomes hold enzymes that were created by the cell. The purpose of the lysosome is to digest things. They might be used to digest food or break down the cell when it dies.

A lysosome is basically a specialized vesicle that holds a variety of enzymes. The enzyme proteins are first created in the rough [endoplasmic reticulum](#). Those proteins are packaged in a vesicle and sent to the Golgi apparatus. The Golgi then does its final work to create the digestive enzymes and pinches off a small, very specific vesicle. That vesicle is a lysosome. From there the lysosomes float in the cytoplasm until they are needed. Lysosomes are single-membrane organelles.



Lysosome Action

Since lysosomes are little digestion machines, they go to work when the cell absorbs or eats some food. Once the material is inside the cell, the lysosomes attach and release their enzymes. The enzymes break down complex molecules that can include complex sugars and proteins. But what if food is

scarce and the cell is starving? The lysosomes go to work even if there is no food for the cell. When the signal is sent out, lysosomes will actually digest the cell organelles for nutrients.

Peroxisomes - Another Enzyme Package

There are many ways that **peroxisomes** are similar to [lysosomes](#). They are small vesicles found around the cell. They have a single membrane that contains digestive enzymes for breaking down toxic materials in the cell. They differ from lysosomes in the type of enzyme they hold. Peroxisomes hold on to enzymes that require oxygen (**oxidative enzymes**). Lysosomes have enzymes that work in oxygen-poor areas and lower pH. Peroxisomes absorb nutrients that the cell has acquired. They are very well known for digesting **fatty acids**. They also play a part in the way organisms digest **alcohol** (ethanol). Because they do that job, you would expect liver cells to have more peroxisomes than most other cells in a human body. They also play a role in cholesterol synthesis and the digestion of **amino acids**.

Centrioles - Organizing Chromosomes

Every animal-like cell has two small organelles called **centrioles**. They are there to help the cell when it comes time to divide. They are put to work in both the process of [mitosis](#) and the process of [meiosis](#). You will usually find them near the [nucleus](#) but they cannot be seen when the cell is not dividing.

Centriole Structure

A centriole is a small set of microtubules arranged in a specific way. There are **nine groups** of microtubules. When two centrioles are found next to each other, they are usually at right angles. The centrioles are found in pairs and move towards the poles (opposite ends) of the nucleus when it is time for cell division. During division, you may also see groups of threads attached to the centrioles. Those threads are called the **mitotic spindle**.

Cilia and flagella

Cilia and flagella are projections from the cell. They are made up of [microtubules](#). They are motile and designed either to move the cell itself or to move substances over or around the cell. The primary purpose of cilia in mammalian cells is to move fluid, mucous, or cells over their surface. Cilia and flagella have the same internal structure. The major difference is in their length.

Eye Spot

A heavily pigmented region in certain one-celled organisms that apparently functions in [light reception](#).

CONTRACTILE VACUOLE,

In [biology](#), a spherical space filled with liquid, which at intervals discharges into the medium; it is found in all fresh-water groups of [Protozoa](#), and some marine forms, also in the naked aquatic reproductive cells of [Algae](#) and [Fungi](#). It is absent in states with a distinct [cell-wall](#) to resist excessive turgescence, such as would [lead](#) to the rupture of a naked [cell](#), and we conclude that its chief function is to prevent such turgescence in unprotected naked cells